European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Third Report by the United Kingdom under Article 17

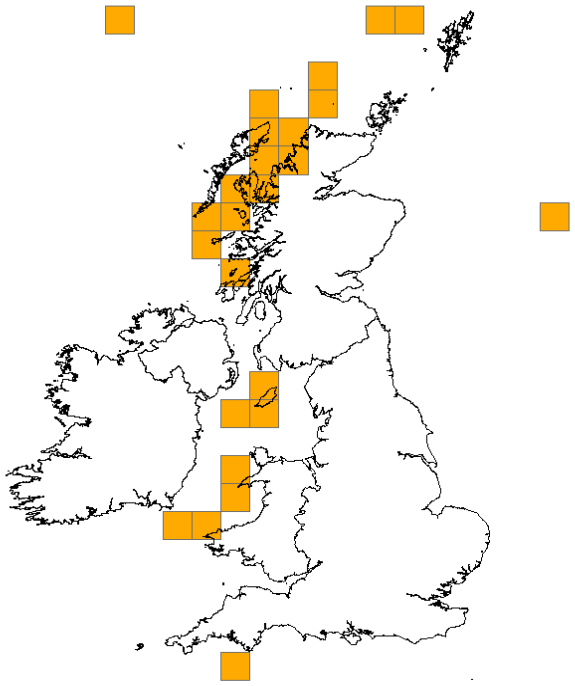
on the implementation of the Directive from January 2007 to December 2012
Conservation status assessment for

Species:

S2030 - Risso's dolphin (*Grampus griseus*)

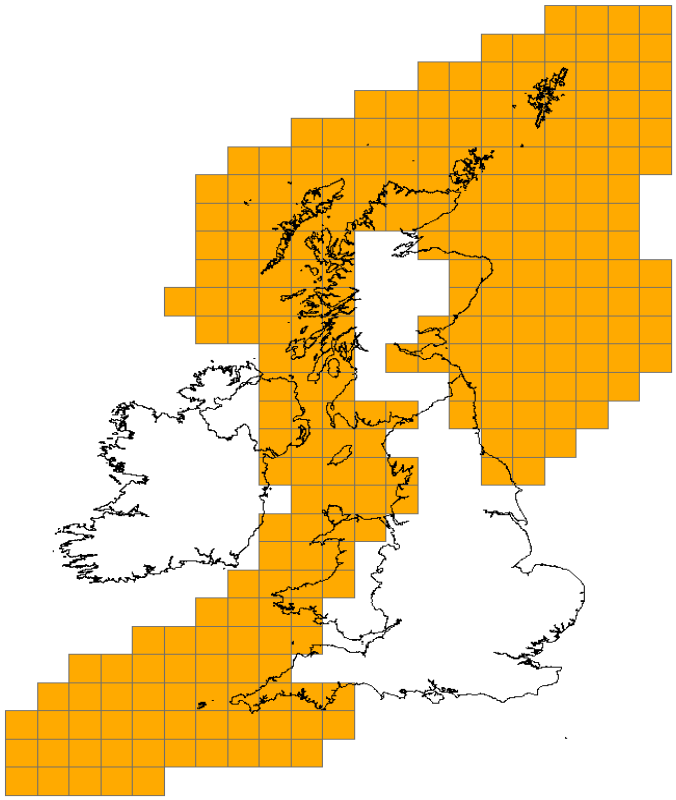
Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

Field name	*Brief explanations*	
0.2 Species	**0.2.1 Species code**	**S2030**
	0.2.2 Species scientific name	***Grampus griseus***
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	

1.1 Maps			
1.1.1 Distribution map		**Sensitive**	**False**
	In UK waters, Risso's dolphins occur both on and off the continental shelf, although the latter is thought to be more common during winter months (Reid et al. 2003). The distribution map (2007-2010) shows that Risso's dolphins occur in almost all areas of the continental shelf, but are most common on the west. However, there are few records for the southern North Sea and Channel from longer-term datasets (Reid et al., 2003; Evans, 2008). Their occurrence beyond the continental shelf edge may be under-represented due to limited survey effort in this region. Reid et al.		

	(2003) noted that although Risso's dolphin records were common just beyond shelf waters, none came from deeper waters. This conclusion was drawn from an analysis of effort-related survey data collated between 1979 and 1997. However, a group of 2-4 Risso's dolphins were recorded in deep waters beyond the continental slope off northwest Scotland during the Cetacean Offshore Distribution and Abundance survey in July, 2007 (CODA, 2009). Although outwith the UK EEZ, a further sighting of Risso's dolphin in deep waters, beyond the continental slope was recorded during the CODA survey, directly west of southwest England (CODA, 2009). In general, the pattern of distribution for this reporting period is consistent with previous records. Data from the late 1970s to 1998, show sightings on and along the continental shelf of the UK, particularly from western Scotland, with waters surrounding the Outer Hebrides a centre of distribution (Evans et al., 2003). Clusters have been recorded in the southern Irish Sea and off southwest Ireland (Reid et al., 2003; Evans, 2008). The northern most UK sightings are those around Shetland and Orkney (Evans, 1996; Pollock et al., 2000; Evans et al., 2003); these opportunistic sightings around the Northern Isles have continued (SeaWatch Foundation, website). A significant number of casual sightings have also been recorded around the Isle of Man, while isolated records come from the Channel Islands, the Welsh coast, and the South East coast of Scotland (SeaWatch Foundation, website). Although present in UK waters throughout the year, numbers are greatest between May and October (Evans et al., 2003). The UK strandings record also provides insights into the distribution, with most strandings occurring on the northern UK coastline, particularly from north and west Scotland. Between 2005-2010, 45 Risso's dolphins stranded around the UK coast, 35 of which were on the Scottish coastline (Deaville and Jepson, 2011). In 2011, 6 individuals stranded around the UK coast (2 in Scotland, 3 in Wales and 1 on the Isle of Man coast) (Deaville, 2011). During 2012, 7 Risso's were reported stranded (5 Scotland and 2 in England) (Deaville, 2012, a, b, c).

1.1.2 Method used - map	**Estimate based on partial data with some extrapolation and/or modelling**
	The distribution map was based on the data compiled for the Joint Cetacean Protocol and spanned 1994-2010 (http://jncc.defra.gov.uk/page-5657). The sightings data were standardised and a model fitted using a suite of explanatory environmental covariates to predict density and abundance throughout the surveyed area (Paxton et al. in prep). Although the density of Risso's dolphin was modelled, the uncertainty surrounding the model outputs is very high due to the scarcity of sightings and also due to the nature of Risso's dolphin distribution which is relatively clumped in a few key areas. Therefore, the distribution of estimated density from available data which was used as input to the modelling stage (which predicts density outwith survey areas) was used to indicate species distribution. The map of input densities (Paxton et al. in prep) was converted to presence/absence on a grid of 50x50km resolution to summarise distribution. Sightings from the Cetacean Offshore Distribution and Abundance (CODA) survey in July 2007 were also mapped as the survey area lies predominantly beyond the JCP prediction area. These sightings were also converted to presence at a 50x50km resolution.
1.1.3 Year or period	**1994-2012**
	The map used to interpret distribution was derived from a map of 'input densities' generated by analysis of datasets compiled by the Joint Cetacean Protocol for the period 1994-2010 (Paxton et al. in prep). Additionally, sightings data from the July 2007 Cetacean Offshore Distribution and Abundance survey were used to look at distribution

	beyond the continental shelf (CODA, 2009).
1.1.4 Additional distribution map Optional	**False**
1.1.5 Range map	
	Range is based on the distribution (1.1.1), actual sightings and expert judgement. Occurrence of Risso's dolphin in the southern North Sea and Channel are considered extra-limital and are not included as part of this species range. Although there are few sightings west of the continental shelf (CODA, 2009), there has been limited survey effort in these areas during the current reporting period, and in previous decades. However, there are records in water depths of 1000m+ (e.g. Pollock et al., 2000; CODA, 2009; Stone, in prep.) which suggests their presence, even if at very low densities. These deep areas, therefore, have been included in the range until further information becomes available.

2.1 Biogeographical region & marine regions	**MATL**
2.2 Published sources	**Anderwald, P. and Evans, P. G. H. 2010. Cetaceans of the east Grampian Region. SeaWatch Foundation Report. 68 pp.** **Atkinson, T. and Gill, A. 1996. Risso's dolphins (Grampus griseus) in the coastal waters of the Eye peninsula, Isle of Lewis, Scotland. Report to the Whale and Dolphin Conservation**

Society. 26pp.

Atkinson,T., Gill, A. and Evans, P.G.H. 1998. A photo-identification study of Risso's dolphins in the Outer Hebrides, Northwest Scotland. European Research on Cetaceans 12: 102.

Baines, M.E. and Evans, P.G.H. 2009. Atlas of the Marine Mammals of Wales. CCW Monitoring Report No. 68.

Baumgartner, M. F. 1997. The distribution of Risso's dolphin (Grampus griseus) with respect to the physiography of the northern Gulf of Mexico. Marine Mammal Science, 13(4): 614-638.

Bloch, D., Desportes, G., Harvey, P., Lockyer, C. and Mikkelsen, B. 2012. Life History of Risso's Dolphin (Grampus griseus) (G. Cuvier, 1812) in the Faroe Islands. Aquatic Mammals. 38(3): 250-266.

Capelli, R., Das, K., De Pellegrini, R., Drava, G., Lepoint, G. et al. 2008. Distribution of trace elements in organs of six species of cetaceans from the Ligurian Sea (Mediterranean) and the relationship with stable carbon and nitrogen ratios. Sci Total Environ, 390, 569-578.

Casinos, A. von, and Filella, S. 1994. Grampus griseus (G. Cuvier, 1812) – Rundkopfdelphin, Risso-Delphin. In D. Robineau, R. Duguy, & M. Klima (Eds.), Handbuch der säugetiere Europas: Meeressäuger. Wale und Delphine 1 [Handbook of the mammals of Europe: Sea mammals. Whale and dolphin 1] (Part 1A, band 6/1A, pp. 395-405). Wiesbaden, Germany: AULA-Verlag. 503 pp.

Clarke, M.R. and Pascoe, P.L. 1985. The stomach contents of a Risso's dolphin (Grampus griseus) stranded at Thurleston, South Devon. Journal of the Marine Biological Association of the U.K. 65, 663-665.

CODA, 2009. Cetacean Offshore Distribution and Abundance in the European Atlantic. Final Report. 43pp. [Available from http://biology.st-andrews.ac.uk/coda/documents/CODA_Final_Report_11-2-09.pdf]

CSIP database. Cetacean Strandings Investigation Programme database 1989-2011. Access to database available on request. http://ukstrandings.org/

Culik, B. M. 2011. Odontocetes -The toothed whales. CMS Technical Series No. 24.

De Boer, M. 2009. Risso's dolphins off Bardsey Island. WDCS Science Report. 4pp.

Deaville, R. and Jepson, P.D. 2011. Final report for the period 1st January 2005-31st December 2010. UK Cetacean

Strandings Investigation Programme (CSIP).

Deaville, R. 2011. Quarterly report for the period 1st October-30th December 2011. UK Cetacean Strandings Investigation Programme (CSIP).

Deaville, R. 2012. Quarterly report for the period 1st April-30th June 2012. UK Cetacean Strandings Investigation Programme (CSIP).

Deaville, R. 2012a. Quarterly report for the period 1st Jan - 30th March 2012. UK Cetacean Strandings Investigation Programme (CSIP).

Deaville, R. 2012b. Quarterly report for the period 1st Jul - 30th Sept 2012. UK Cetacean Strandings Investigation Programme (CSIP).

Deaville, R. 2012c. Quarterly report for the period 1st Oct - 30th Dec 2012. UK Cetacean Strandings Investigation Programme (CSIP).

De Boer, M., Eisfeld, S. and Simmonds, M. P. 2012. The fine scale habitat use of Risso's dolphins (Grampus griseus) off Bardsey Island, Cardigan Bay (UK). Presentation at the ECS Risso's dolphin workshop, 26th ECS Conference, Galway, Ireland.

Dolman, S.J., Hodgins, N. and Gill, A. submitted. Land and boat-based observations of Risso's dolphins off North-east Isle of Lewis, Scotland from 2010 to 2012.

Evans, P.G.H. 1996. Sighting frequency and distribution of cetaceans in Shetland waters. The Shetland Cetacean Group Report, 1995, 9-18

Evans, P. G. H., Anderwald, P., & Baines, M. E. 2003 UK Cetacean Status Review. Report to English Nature and the Countryside Council for Wales.

Evans, P. G. H., 2008. Whales, porpoises and dolphins Order Cetacea. In Harris, S. & Yalden, D.W. (eds) Mammals of the British Isles. Chapter 12, pp 655-779. The Mammal Society.

Fernandez, A., Edwards, J.F., Rodrigeau, F., Espinosa de los Monteros, P., Herraez, P., Castro, P., Jaber, J.R., Martin, V. and Arbelo, M. 2005. "Gas and fat embolic syndrome" involving mass stranding of Beaked whales (Family Ziphiidae) exposed to anthropogenic sonar signals. Vet Pathol. 42:446.

Filadelfo, R., Mintz, J., Michlovich, E., D'Amico, A., Tyack, P.L. et al. 2009. Correlating military sonar use with beaked whale mass strandings: What do the historical records show? Aquatic Mammals 35: 435-444.

Gaspari, S. 2004. Social and population structure of striped and

Risso's dolphin in the Mediterranean Sea. PhD dissertation, University of Durham, UK.

Gaspari, S., Airoldi, S. and Hoelzel, A.R. 2007. Risso's dolphins (Grampus griseus) in UK waters are differentiated from a population in the Mediterranean Sea and genetically less diverse. Conserv. Genet., 8: 727-732.

Hammond, P. S., Berggren, P., Benke, H., Borchers, D. L., Collet, A., Heide-Jorgensen, M. P., Heimlich, S., Hiby, A. R., Leopold, M. F. and Øien, N. 2002 Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters. Journal of Applied Ecology, 39, pp. 361-376.

Harrison, R. J. 1969. Reproduction and reproductive organs. In H. T. Andersen (editor), The biology of marine mammals, p. 253-348. Academic Press, N.Y.

Hartman, K.L., Visser, F., Hendriks, A.J.E., 2008. Social structure of Risso's dolphins (Grampus griseus) at the Azores: a strati?ed community based on highly associated social units. Can. J. Zool. 86, 294–306.

ICES WGMME. 2010. Report of the Working Group on Marine Mammal Ecology (WGMME), 12-15 April 2010, Horta, The Azores.

ICES WGMME. 2011. Report of the Working Group on Marine Mammal Ecology (WGMME), 22-24 February 2011, Berlin, Germany.

ICES WGMME. 2012. Report of the Working Group on Marine Mammal Ecology (WGMME), 5-8 March 2012, Copenhagen, Denmark.

Jepson, P.D., Arbelo, M., Deaville, R., Patterson, I.A.R., Castro, P. et al. 2003. Gas-bubble lesions in stranded cetaceans. Nature, 425: 575-576.

Jepson, P.D. 2004. Report to Defra for the period 1st January 2000-31st December 2004. UK Cetacean Strandings Investigation Programme (CSIP).

Jepson, P.D.,Deaville, R., Patterson, I.A.P., Pocknell, A.M., Ross, H.M., Baker, J.R., Howie, F.E., Reid, R.J., Colloff, A. and Cunningham, A.A. 2005. Acute and chronic gas bubble lesions in cetaceans strandend in the United Kingdom. Vet Pathol. 42:291.

JNCC, 2010. JNCC guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys. Available from http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Seismic%20Guidelines_Aug%202010.pdf.

JNCC, 2010a. Statutory nature conservation agency protocol

for minimising the risk of injury to marine mammals from piling noise. http://jncc.defra.gov.uk/pdf/JNCC_Guidelines_Piling%20protocol_August%202010.pdf.

Kenney, R.D. and Winn, H.E. 1986. Cetacean high-use habitats of the northeast United States continental shelf. Fishery Bulletin, U.S. 84, 345-357.

Kishiro, T. 1998. Life history parameters of Risso's dolphins off the Pacific coast of Japan. In: Abstract of 7th Annual Meeting North Pacific Marine Science Organisation, pp. 94. Alaska, America.

Kim, G.B., Tanabe, S., Iwakiri, R., Tatsukawa, R., Amano, M., Miyazaki, N. and Tanaka, H. 1996. Accumulation of butyltin compounds in Risso's dolphin (Grampus griseus) from the Pacific coast of Japan: comparison with organochlorine residue pattern. Environ. Sci. Technol. 30(8): 2620-2625

Kingston, A. and Northridge, S. 2011. Extension trial of an acoustic deterrent system to minimise dolphin and porpoise bycatch in gill and tangle net fisheries. Report to the MMO under the Fisheries Challenge Fund. Available from: http://marinemanagement.org.uk/fisheries/funding/documents/fcf-acoustic-deterrent.pdf

Kruse, S., Caldwell, D. K. and Caldwell, M. C. 1999. Risso's dolphin - Grampeus griseus (G. Cuvier, 1812). In: Handbook of Marine Mammals (Ridgway, S. H. and Harrison S. R.). Vol 6: The Second Book of Dolphins and Porpoises. Pp. 183-212.

MacLeod, C. D. 2009. Global climate change, range changes and potential implications for the conservation of marine cetaceans: a review and synthesis. Endang Species Res. 7: 125–136.

MacLeod, C.D., Santos, M.B., Burns, F., Brownlow, A. and Pierce, G.J. In press. Can habitat modelling for the octopus Eledone cirrhosa help identify key areas for Risso's dolphin in Scottish waters? Hydrobiologia

Merrett, N.R. 1998. Stomach contents analysis of stranded Cetacea. In: Studies in the biology of Cetacea. A report to the Welsh Office from the Natural History Museum of Wales.

Paxton, C.G.M., Scott-Hayward, L., Mackenzie, M., Rexstad, E. & Thomas, L. in Prep. Revised Phase III Data Analysis of Joint Cetacean Protocol Data Resource. Draft report to The Joint Nature Conservation Committee. Contract number C11-0207-0421

Perrin, W.F. and Reilly, S.B. 1984. Reproductive parameters of dolphins and small whales of the family Delphinidae. "Reproduction of Whales, Dolphins and Porpoises" (W.F. Perrin, R.L. Brownell, Jr., and D.P, DeMaster, eds.), pp. 97-133.

Rep.int.Whal.Comm., Special Issue 6. 495 pp.

Pollock, C.M., Mavor, R., Weir, C.R., Reid, A., White, R.W., Tasker, M.L., Webb, A. and Reid, J.B. 2000. The distribution of seabirds and marine mammals in the Atlantic Frontier, north and west of Scotland. Joint Nature Conservation Committee, Aberdeen.

Reid, J.B., Evans, P.G.H. and Northridge, S.P. 2003. Atlas of cetacean distribution in north-west European waters. Joint Nature Conservation Committee, Peterborough.

Santos, M. B., Pierce, G. J., Ross, H. M., Reid, R. J., and Wilson, B. 1994. Diets of small cetaceans from the Scottish coast (C.M. 1994/N:11). Copenhagen, Denmark: International Council for the Exploration of the Sea. 16 pp.

SCANS-II. 2008. Small cetaceans in the European Atlantic and North Sea (SCANS II). Final report to the European Commission under contract LIFE04NAT/GB/000245.

Simmonds, M.P., and Isaac, S.J. 2007. The impacts of climate change on marine mammals: early signs of significant problems. Oryx 41(1).

Storelli, M.M., Zizzo, N. and Marcotrigiano, G.O. 1999. Heavy metals and methylmercury in tissues of Risso's dolphin (Grampus griseus) and Cuvier's beaked whale (Ziphius cavirostris) stranded in Italy (South Adriatic Sea). B Environ Contam Tox 63:703–10.

Weir, C. R., Pollack, C. Cronin, C. and Taylor, S. 2001. Cetaceans of the Atlantic Frontier, north and west of Scotland. Continental Shelf Science, 21, 1047-1071.

Würsig, B. and Richardson, W.J. 2009. Noise, effects of. Pp. 765–772. In: Perrin, W.F., Würsig, B., and J.G.M. Thewissen, Eds. The Encyclopedia of Marine Mammals, Ed. 2. Academic/Elsevier Press, San Diego, Ca. 1316 pp.

Würtz, M., Poggi, R. and Clarke, M.R. 1992. Cephalopods from the stomachs of a Risso's dolphin (Grampus griseus) from the Mediterranean. Journal of the Marine Biological Association of the United Kingdom, 72(4): 861-867.

2.3 Range	
2.3.1 Surface area Range	**531812**
	The range is based on the distributional data for the reporting period (1.1.1) and expert judgement as to the likely boundaries of the species range. Sightings data suggest that use of different parts of the range changes with season and there are key areas within the range where

	this species is most common (e.g Hebrides) with low densities elsewhere. Reid et al. (2003) found that Risso's dolphins occurred on the edge of the continental slope only outwith the summer months (i.e. October - May). There may, therefore, be a westerly expansion and contraction in range to the west of the UK depending on season. In the northern North Sea, this species occurs year-round (Anderwald and Evans, 2010). The surface area as depicted in the range map (1.1.5) represents the likely greatest extent of this species considering year-round distribution data.
2.3.2 Method used Surface area of Range	**Estimate based on partial data with some extrapolation and/or modelling**
	The range was based on the distribution data (map 1.1.1) and also the large-scale model prediction of the distribution of Risso's dolphins during mid-August 2010 (Paxton et al. in prep). A model was fitted to effort-related survey data comprising the Joint Cetacean Protocol (JCP) spanning 1994-2010 and with coverage over the continental shelf inclusive of waters up to 300m depth. The best model was used to predict Risso's dolphin density on a gridded surface (resolution 5x5km) at a variety of temporal and spatial scales. Sightings from the Cetacean Offshore Distribution and Abundance survey (CODA, 2009) were also mapped in ArcMap 10.1 together with the JCP predicted distribution, to provide additional data for UK waters deeper than 300m. These data sources were used to inform judgement about where this species regularly occurs and therefore determine range.
2.3.3 Short-term trend Period	**2001-2012**
2.3.4 Short term trend Trend direction	**unknown**
	This is the first reporting period for which the UK has quantified the area of Risso's dolphin range and therefore, it is not possible to assess trends in range. Although the Joint Cetacean Protocol analysis (Paxton et al, in prep) predicts density of this species throughout UK continental shelf between 1994-2010, the model outputs for this species have very high uncertainty. This is due to the scarcity of sightings data and due to the nature of Risso's dolphin distribution which is patchy. It was therefore considered inappropriate to use the JCP outputs for assessment of trends for this species.
2.3.5 Short-term trend Magnitude Optional	**a) Minimum**
	b) Maximum
2.3.6 Long-term trend Period Optional	**1988-2012**
2.3.7 Long-term trend Trend direction Optional	**unknown**
	This is the first reporting period for which the UK has quantified the area of Risso's dolphin range and therefore, it is not possible to assess trends in range. Although the Joint Cetacean Protocol analysis (Paxton et al, in prep) predicts density of this species throughout the UK

	continental shelf between 1994-2010, the model outputs for this species have very high uncertainty. This is due to the scarcity of sightings data and to the nature of Risso's dolphin distribution which is patchy. It was therefore considered inappropriate to use the JCP outputs for assessment of trends for this species.	
2.3.8 Long-term trend Magnitude Optional	**a) Minimum**	
	b) Maximum	
2.3.9 Favourable reference range	**a) Value in km²**	
	The FRR in UK waters is considered to approximately equal the FRR reported in the previous reporting round (2001-2006). Seasonal changes in range, particularly on and off the continental shelf are known (Reid et al. 2003). Presence on the continental shelf is greatest during the summer months, with movement to the continental shelf edge between October-May (Reid et al. 2003). Therefore, the estimated area represents the likely maximum used on an annual basis.	
	b) Operator for FRR	**approximately equal to**
	c) FRR is unknown (indicated by "true")	**False**
	d) Method used to set FRR	**The Favourable Reference Range for Risso's dolphin was reported as the range described in the last reporting period (2001-2006); however, the size of this range was not quantified. There is no evidence to suggest that there has been a change in range of this species and therefore the current range, which has been quantified (2.3.1), represents the size of the FRR.**
2.3.10 Reason for change Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to…	**a) Genuine change?**	**False**
	b) Improved knowledge/more accurate data?	**False**

	c) Use of different method (e.g. "Range tool")?	**False**

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	**a) Unit**	**number of individuals**
	b) Minimum	**175**
	c) Maximum	**4440**
2.4.2 Population size estimation (using population unit other than individuals) Optional *(if 2.4.1 filled in)*	**a) Unit**	
	b) Minimum	
	c) Maximum	
2.4.3 Additional information on population estimates / conversion Optional	**a) Definition of "locality"**	
	b) Method to convert data	
	c) Problems encountered to provide population size estimation	**The population size applies to the area of the UK EEZ which is less/equal to 300m in depth. The considerable offshore area to the northwest of Scotland is excluded, although density of Risso's dolphin in this area is likely to be low.**
2.4.4 Year or period	**2010-**	
2.4.5 Method used Population size	**Estimate based on partial data with some extrapolation and/or modelling**	
	The population estimates have been taken from different sources; i) Photo-ID data of catalogued individuals in two core areas of this species range to represent the minimum population size and ii) the upper 95% confidence interval from the Joint Cetacean Protocol estimate of abundance in summer 2010 (Paxton et al. in prep). The JCP analysis utilised 38 different data sources with varying spatial and temporal coverage but collectively spanning years 1979-2010 (although only data from 1994 onwards were used) and the Marine Atlantic Biogepgraphic region, including much of the UK's EEZ (all waters except those >300m in depth). Sightings data were standardised and corrections applied for the detection function (g(0)). A model was fitted to corrected numbers	

	of animals on the survey transect lines against a suite of explanatory environmental covariates, latitude, longitude, year and time of year (Paxton et al. in prep). The best model was used to predict density and abundance throughout the study area for each year and for each season (all years combined). It was necessary to group 'like-datasets' for the purposes of analysis and a number of assumptions were made in this process. Additionally, values of key parameters in correcting the numbers of sightings had to be based on very limited data. Consequently, the uncertainty surrounding the abundance estimates generated by the JCP is very large (Paxton et al. in prep): an abundance estimate of 1,210 individuals in the 'truncated EEZ' during summer 2010 but with 95% confidence intervals of 100-11,770. This amounts to huge uncertainty in the point estimate of abundance and is why it is not considered to be an accurate estimate of population size.
2.4.6 Short-term trend Period	**2001-2010**
2.4.7 Short-term trend Trend direction	**unknown**
	Paxton et al. (in prep) report trends by comparing average abundance for each species in the area of interest, during 1994-2010. However, the reliability of the JCP outputs for Risso's dolphins is questionable. Although the JCP predicts density and abundance of this species throughout UK continental shelf between 1994-2010, the model outputs for this species have very high uncertainty. This is due to the scarcity of sightings data and to the nature of Risso's dolphin distribution which is patchy. It was therefore considered inappropriate to use the JCP outputs for assessment of trends for this species. On a regional scale, long-term monitoring of Risso's dolphins in the Irish Sea show that there is a great deal of interannual variation in encounter rates. In the short-term, maps of sightings rates for two periods, 2000-2004 and 2005 - 2007, suggest that for areas with comparable amounts of effort (NW Isle of Man & Anglesey, North Wales), sightings rates were higher in the 2005-2007 period (Baines and Evans, 2009). However, this may not be representative of Risso's dolphins in other areas (such as the West coast of Scotland) or of the population as a whole and therefore, the conclusion for short-term trends is unknown.
2.4.8 Short-term trend Magnitude Optional	**a) Minimum**
	b) Maximum
	c) Confidence interval
2.4.9 Short-term trend Method used	**Estimate based on partial data with some extrapolation and/or modelling**

2.4.10 Long-term trend – Period Optional	**1994-2010**	
2.4.11 Long-term trend Trend direction Optional	**unknown**	
	Paxton et al. (in prep) report trends by comparing average abundance for each species in the area of interest, during 1994-2010. However, the reliability of the JCP outputs for Risso's dolphins is questionable. Although the JCP predicts density and abundance of this species throughout UK continental shelf between 1994-2010, the model outputs for this species have very high uncertainty. This is due to the scarcity of sightings data and to the nature of Risso's dolphin distribution which is patchy. It was therefore considered inappropriate to use the JCP outputs for assessment of trends for this species. On a regional scale, long-term monitoring of Risso's dolphins in the Irish Sea show that there is a great deal of interannual variation in encounter rates (Baines and Evans, 2009). Maps of sightings rates and survey effort for four periods, 1990 -1994, 1995-1999, 2000-2004 and 2005 - 2007 can be compared. Despite a general decline in the amount of effort in the wider Irish Sea, sighting rates of Risso's appear to have increased in the north of the area between extreme time periods. On the west coast of Scotland, off the Isle of Lewis a reduction in the numbers of Risso's dolphin is inferred from changes in group sizes (Dolman et al. submitted). Anecdotal reports from fisherman of fewer sightings and smaller groups were investigated by comparing data collected in the area during 1995/1996 with recent data from 2010-2012. This showed that mean group size was smaller during 2011/2012 compared to 1995/96. The authors comment that this warrants further investigation (Dolman et al. submitted) and acknowledge that differences in observers could play a role. The difference may also be a chance result that reflects interannual variation; an analysis of a longer time series of data would be valuable to see if there is a declining trend or a more variable pattern. Therefore, whilst there have been some observations at a regional/local scale it is difficult to interpret these at the population level. Apparent trends at small spatial scales may be due to changes in distribution over a wider area and therefore it is conluded that long-term trends in this species abundance are unknown.	
2.4.12 Long-term trend Magnitude Optional	**a) Minimum**	
	b) Maximum	
	c) Confidence interval	
2.4.13 Long term trend Method used	**Estimate based on partial data with some extrapolation and/or modelling**	

Optional		
2.4.14 Favourable reference population	**a) Number of individuals/agreed exceptions/other units**	
	b) Operator	
	c) FRP is unknown (indicated by "true")	**True**
	d) Method used to set FRP	**The number of sightings of Risso's dolphins during the SCANS (Hammond et al. 2002) and SCANS-II (SCANS-II, 2008) surveys of July 1994 and 2005, respectively, were not sufficient to allow population abundance to be estimated. The only estimate of abundance at the population scale comes from the Joint Cetacean Protocol (Paxton et al. in prep). However, the JCP estimates were not generated to be used as robust population abundance estimates and for this species, inparticular, confidence intervals surrounding estimates are unacceptable. This is primarily the result of few data on this species available within the JCP. Photo-identification studies have provided some minimum counts of Risso's dolphins but at a very local scale. A 2-year study off northeast Lewis (Outer Hebrides) identified 142 individuals, 52 of which were resighted between years (Atkinson et al. 1998). A further 133 individuals have been catalogued off Bardsey Island, North Wales (De Boer, 2009). Significant genetic differences were found between Northeast Atlantic Risso's dolphins and those in the Mediterranean (Gaspari, 2004). Prelimary analyses also suggest genetic differences between Risso's dolphins in the UK (samples primarily from the Western Isles) and the Mediterranean (Gaspari et al. 2007). There is no evidence for population structure of Risso's dolphins within UK waters, however, fine scale population structure has been noted in the Mediterranean (Gaspari, 2004.). Therefore, given the lack of a robust UK population estimate and knowledge of stock structure, the Favourable Reference population is unknown.**

2.4.15 Reason for change Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	**a) Genuine change?**	**False**
	b) Improved knowledge/more accurate data?	**False**
	c) Use of different method (e.g. "Range tool")?	**False**

2.5 Habitat for the species		
2.5.1 Area estimation	**531812**	
	In the absence of data to define habitat for this species, the area of suitable habitat is assumed to be equivalent to its range. However, parts of the range are used preferentially and seasonal movements onto the shelf and to the shelf edge have been related to changes in prey migrations and availability on the Faroese shelf (Bloch et al. 2012). In the UK, the primary prey of Risso's dolphin is octopus (Eledone cirrhosa) (Santos et al. 1994; Merrett, 1998; MacLeod et al. in press). It might be expected that the distribution of Risso's dolphin is closely linked to that of its prey; however, MacLeod et al (in press) found that the distribution of the octopus known from trawl samples (predominantly in Scotland) did not predict the distribution of Risso's dolphin.	
2.5.2 Year or period	**2007-2010**	
2.5.3 Method used Habitat for the species	**Estimate based on partial data with some extrapolation and/or modelling**	
2.5.4 Quality of the habitat	**a) Habitat quality**	**Unknown**
	The literature suggests that Risso's dolphins prefer areas with steep seabed topography (Kenney and Winn, 1986; Würtz et al., 1992; Atkinson and Gill, 1996; Baumgartner et al. 1997) which in turn may influence the distribution of their prey (Clarke and Pascoe, 1985). The diet of Risso's dolphin consists mainly of cephalopods; a mixture of squid, cuttlefish and octopus (Santos et al. 1994). They may also take fish (Kruse et al. 1999). They will feed on prey in the water column and on the seabed (Bloch et al. 2012). Bloch et al (2012) analysed the stomach contents of Risso's dolphins landed in Faroese drive hunts in September 2009 (3 landed and sampled) and April 2010 (21 landed and 11 sampled). Both schools landed showed a mixed diet but the diet of the school landed in September centred on a pelagic squid (Todarodes sagittatus), while the April school diet centred upon a benthic octopod (Eledona cirrhosa). Analysis of stomach contents of Risso's dolphins in	

	the UK shows a predominance of the octopus Eledona cirrhosa (Santos et al. 1994; Merrett, 1998; MacLeod et al. submitted). It might be expected that the distribution of Risso's dolphin is closely linked to that of its prey; however, MacLeod et al (in press) found that the distribution of the octopus known from trawl samples (predominantly in Scotland) did not predict the distribution of Risso's dolphin.	
	b) Assessment method	**Cetacean habitats (e.g. feeding and breeding areas) vary temporally and spatially and are influenced by natural and anthropogenic factors. It is often difficult to determine what features characterise cetacean habitats and in quantifying their extent. The distribution of Risso's dolphin is patchy, with particular concentrations off the Isle of Lewis and Bardsey Island, which suggests that not all areas of its range are used equally. Currently, no significant links between distribution and environmental parameters, such as prey, have been detected (MacLeod et al., in press).**
2.5.5 Short-term trend Period	**2001-2012**	
2.5.6 Short-term trend Trend direction	**unknown**	
2.5.7 Long-term trend Period Optional	**1988-2012**	
2.5.8 Long-term trend Trend direction Optional	**unknown**	
2.5.9 Area of suitable habitat for the species	**a) Value in km²**	
	b) Absence of data indicated as '0'	
2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	**a) Genuine change?**	**False**
	b) Improved knowledge/more accurate data?	**False**
	c) Use of different method (e.g. "Range tool")?	**False**

2.6 Main pressures		
a) Pressure	**b) Ranking**	**c) Pollution qualifier**
	H = high importance (max 5 entries) M = medium importance L = low importance	
F02: Fishing and harvesting aquatic resources	H	
G01: Outdoor sports and leisure activities, recreational activities	M	
G04: Military use and civil unrest	M	
H03: Marine water pollution	M	X
C02: Exploration and extraction of oil or gas	L	
D03: shipping lanes, ports, marine constructions	L	

Between 1991-2010, 35 post mortem examinations were undertaken on stranded UK Risso's dolphins. The main causes of death were bycatch (17%), live stranding (14%), starvation (14%), and infectious disease (11%). Also of note, five individuals (14%) died as a consequence of gas embolisms (Jepson, 2004; Deaville and Jepson, 2011). These have been linked to noise pollution (Jepson, 2003; Jepson et al., 2005), and, more specifically, in other species, to mid-frequency military sonar exposure (Fernandez et al., 2005; Filadelfo et al., 2009). Bubble formation in response to sonar exposure might result from behavioural changes to normal dive profiles (Jepson, 2003). Risso's dolphins also accumulate contaminants (e.g. Kim et al. 1996), and in the Northeast Atlantic, high levels of heavy metals have been documented in stranded Risso's dolphins in the Mediterranean Sea (Capelli et al. 2008). The specialist feeding habits of Risso's dolphins are likely to increase exposure to contaminants bioaccumulated in their prey as cadmium, copper and zinc are found in high concentrations in squid (Storelli et al., 1999). Despite the high percentage of stranded Risso's dolphins showing signs of bycatch, there is little evidence from the current bycatch monitoring scheme to suggest this as the major source of mortality. In 2012, a single Risso's dolphin was recorded as bycaught in a static net in the Celtic Sea: the first bycatch of this species that has been recorded in the UK monitoring scheme. Evidence of bycatch in this area appears infrequently in the strandings record (2 strandings since 1989 in 1994 & 2004) on the Cornish coast. All other cases of bycaught stranded Risso's dolphins occur in Scotland, on the west coast and Highlands (CSIP database 1989-2011).	
2.6.1 Method used – Pressures	**mainly based on expert judgement and other data**
	Pressure ranking for Grampus griseus is mainly based on expert opinion, published literature and data from post mortem of stranded animals, which indicate sources of mortality for this species. Pressures have been ranked as high where there is a direct impact and the pressure is acting over large areas. They are medium where there are known mortalities but impact is indirect and/or acting regionally. Pressures are ranked as low where the pressure is isolated or given the distribution of animals and the pressure it is unlikely to have a significant impact.

2.7 Threats		
a) Threat	**b) Ranking**	**c) Pollution qualifier**

	H = high importance (max 5 entries) M = medium importance L = low importance	
F02: Fishing and harvesting aquatic resources	H	
C03: Renewable abiotic energy use	M	
G01: Outdoor sports and leisure activities, recreational activities	M	
G04: Military use and civil unrest	M	
H03: Marine water pollution	M	X
C02: Exploration and extraction of oil or gas	L	
D03: shipping lanes, ports, marine constructions	L	
M01: Changes in abiotic conditions	L	

The pressures identified are expected to continue in the longer term. New threats from climate change are expected and the impacts, whilst largely unknown, are expected to be mediated through changes in prey distribution and abundance. Species and populations with a limited habitat and range may be especially vulnerable (Simmonds and Isaac, 2007). However, MacLeod (2009) concludes that climate change could be favourable for Risso's dolphins; as a species that inhabits temperate and tropical waters, the boundaries of its range are currently defined by cooler waters towards the poles. As a result of sea temperature rises through climate change, it is expected that, where possible, Risso's dolphins may expand their geographic ranges polewards into areas where water temperatures were previously too cool, increasing the geographic area occupied (MacLeod, 2009). Marine renewable energy is likely to become a threat to this species, particularly off the west coast of Scotland where there are plans for wave, tidal and wind developments. The effects of these on Risso's dolphin are unknown, but potentially the species is at risk from collision, habitat loss and potentially installation/operation noise.	
2.7.1 Method used – Threats	**expert opinion**

2.8 Complementary information	
2.8.1 Justification of % thresholds for trends	
2.8.2 Other relevant information	**Bloch et al. (2012) examined the life history of 24 Risso's dolphins that were landed in the Faroe Islands in September 2009 (n=3) and April 2010 (n=24). The heaviest male (505kg for 320cm) and female (396kg for 306cm) represent the**

	heaviest animals recorded compared to other areas (California; Harrison, 1969; Portugal; Kruse et al. 1999). Such morphological differences between regions could support the hypothesis for population structuring (Kruse et al. 1999). However, there was much variability between weight and size with the longest animals not necessarily equating to the heaviest. Weight may also vary seasonally. **The length at sexual maturity reported by Bloch et al. (2012) for females, with the largest immature female being 268 cm long and the smallest mature female 277 cm long, lies in the higher end of the 260 to 264 cm range for smallest mature females listed by Perrin & Reilly (1984) and Kishiro (1998). The youngest and lightest mature female was 8 years old (Bloch et al. 2012). Males tend to grow heavier and be larger than females.** **The testicular mass of one male in the Faroese study was 3% of the body mass and compares with other studies (Kishiro pers comm. cited in Bloch et al. 2012). Large testes suggest sperm competition and support the hypothesis of a promiscuous mating system in Risso's dolphin (Bloch et al. 2012). The oldest male and female in the limited Faroese sample was 27 and 31 years respectively (Bloch et al. 2012).**
2.8.3 Trans-boundary assessment	

2.9 Conclusions *(assessment of conservation status at end of reporting period)*		
2.9.1 Range	**a) Conclusion**	**Favourable**
	The current range is considered to approximate the Favourable Reference range for this species and is therefore assessed as Favourable.	
	b) Qualifier	
2.9.2 Population	**a) Conclusion**	**Unknown**
	There is no robust estimate of Risso's dolphin population abundance within UK waters and therefore current population size is unknown.	
	b) Qualifier	
2.9.3 Habitat for the species	**a) Conclusion**	**Unknown**
	In the absence of data to define Risso's dolphin habitat, the conclusion for this parameter is unknown.	
	b) Qualifier	
2.9.4 Future prospects	**a) Conclusion**	**Unknown**

	Given that the FRV, future trend and status for the paramters population and habitat are unknown, then the future prospects for these paramaters are also uknown. Following the EU guidance, the overall future prospects for this species are thus unknown.	
	b) Qualifier	
2.9.5 Overall assessment of Conservation Status	**Unknown**	
	Conservation measures have been undertaken in the UK and adjacent waters, to protect, survey and monitor marine mammal abundance, health and distribution as part of the requirements of the Habitats Directive. It is important to stress that many human activities that have the potential to affect the assessed species are already regulated with the conservation of marine mammals and other wildlife in mind. Assuming that these measures are maintained and further measures are taken, should other pressures emerge or existing pressures change, then the future prospects for cetacean species in UK waters should be favourable. Monitoring of pressures and the effectiveness of mitigation measures is essential and this is underway for major pressures (e.g. bycatch, noise from seismic, pollution). However the effects of lesser understood impacts are hard to predict. Many cetaceans occurring in UK waters will also use waters of other Member States and those of non-Members, so coordination of conservation measures through, for instance ASCOBANS (Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas) is essential to avoid activities in other waters affecting the animals occurring in UK waters. The Habitats Directive is being implemented by identifying and protecting appropriate sites and monitoring bycatch. The UK government funds a national strandings scheme which aims to provide a coordinated approach to the investigation of cetacean strandings in order to assess the number and trends of stranded cetaceans, and potential causes of death. To further implement the directive, a surveillance strategy for cetaceans is being developed linking to the Joint Cetacean Protocol which ultimately aims to enable transboundary approaches to evaluating the conservation status of cetaceans. The JCP Phase III analysis has proved the value of the approach in enabling assessment of range and trends over the short and long-term in the UK EEZ for the first time. Ultimately, the JCP will broaden its data providers to other European Member States. This is reliant on data contributions from European Member States and will be progressed in 2013. An update of the Atlas of cetacean distribution in north-west European waters, published by Joint Nature Conservation Committee (JNCC) in 2003, will result from this project in 2014. The UK is implementing the European Council Regulation EC 812/2004, which lays down measures concerning incidental catches of cetaceans in fisheries, and more generally the bycatch obligations within the Habitats Directive. The regulation stipulates the areas and fisheries to be monitored and those in which pingers are required, as well as the technical specification of such devices. The UK has met the requirements of the Regulation through monitoring the relevant fisheries and by conducting trials of pingers. A dedicated monitoring scheme is	

operated by the SMRU, while collaborative links with the three fishery research laboratories in the UK also allow selected observations from the Discard Sampling Programmes to be included in assessments of cetacean bycatch. Data from discard surveys conducted by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), Marine Science Scotland (MSS) and the Agri-Food and Biosciences Institute of Northern Ireland (AFBINI) are used with discretion because discard sampling is not always compatible with protected species monitoring. The UK observer monitoring programme is also designed to fulfil the UK's obligations under Article 12 of the Habitats Directive.

Monitoring under Regulation 812/2004 is done largely in collaboration with the fishing industry. Bycatch mitigation work is a key complementary programme of work that is intended to ensure any problem that is identified with protected species bycatch can be addressed in an equitable and expedient manner to meet the UK's obligations under Regulation 812/2004 and Article 12 of the Habitats Directive. The observer scheme relies upon good collaborative links with industry. Nevertheless fisheries regulations were enacted in England and Scotland to ensure that there is also a legal obligation for skippers and owners to take observers when asked to do so.

Bycatch monitoring in the UK fisheries in IVa (Northern North Sea) and VIa (West of Scotland) as required by EU Reg 812/2004 has not demonstrated a single cetacean bycatch, including of Risso's dolphin, since the programme began in 2005. The UK has identified those fisheries that are thought to have highest bycatch rates of cetaceans, and has re-focused a majority of observer effort into these segments. Most sampling effort is now directed at under-15 m vessels using static gears in subareas IV and VII. In 2012, a single Risso's dolphin was bycaught in a bottom set gillnet (static net) operating in area VIIe (Western Channel/Celtic Shelf) (Northridge et al. 2013). This animal was caught in an unpingered net (Northridge et al. 2013). Pingers are being used widely by the static net fleet off the southwest coast and they have been shown to reduce bycatch of harbour porpoise by 95% when used correctly. Their ability to prevent Risso's dolphin bycatch cannot be tested due to the low (virtually absent) bycatch rate for this species in this area. Bycatch accounted for 17% of the stranded and post-mortemed Risso's dolphins in the UK between 1991-2010; most of these occur on the west coast of Scotland. The JNCC, on behalf of Defra, is currently undertaking a review of the UKs bycatch monitoring scheme.

Concern regarding the impact of anthropogenically derived sound on marine mammals has been rising in recent decades. The range of sources of anthropogenic noise in the marine environment is many and varied. Some activities, e.g. shipping and other motorised vessels, use of explosives, drilling, dredging and construction, all produce noise indirectly. Other sources, such as active sonars operating at a variety of frequencies, air guns and boomers used in seismic surveys, pingers and acoustic harassment devices, are sources of deliberately introduced sound in the marine environment. The impact of this noise varies from nil (or attraction, e.g. bow riding) to severe depending on the type, frequency and duration of the noise, as well as the relation to the species of concern. Noise can be tolerated, with normal activity patterns being maintained and evidence of no overt response being observed (Würsig & Richardson 2009).

Oil and gas exploration and production generates a variety of noise,

	including initial geophysical surveys (using seismic methodologies), rig construction and drilling, and, finally, structure removal. Of greatest concern is the noise associated with the seismic surveys which use airguns to generate low frequency sound. The Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001 implements the EU Habitats Directive for all oil and gas activities within the UKCS. As part of these regulations any company wishing to carry out a seismic survey must apply for consent from the DECC, the JNCC are consulted on whether consent should be granted for each individual seismic survey and if a consent is granted, a standard condition is that the operator must follow the JNCC guidelines for minimising the risk to marine mammals during seismic surveys (JNCC, 2010). The guidelines advise on conducting marine mammal observations prior to and during seismic activity and utilizing procedures such as soft start (gradually increasing the number of active airguns to allow animals nearby to move away) to reduce and avoid direct harm to animals. Over the years, most recently in 2010, these guidelines have been reviewed and revised in the light of scientific evidence, technical developments and operational understanding. A recent review of the marine mammal observer data collected during 1995-2010 (Stone, in prep.) has demonstrated the effectiveness of soft start approach, which is a key component of the guidelines. The review also includes an analysis of the responses of marine mammals to airguns. Risso's dolphin appeared to show no discernable effects to airgun firing. This review will be published in 2013. The main concern with aggregate extraction is noise generation during survey work. Non-intrusive studies utilise shallow seismic surveys with boomers, which are considerably quieter than the deep seismic surveys undertaken by the oil and gas industry. Currently, consideration is being given to the possible impact of aggregate extraction works on cetaceans with a view to guidelines being developed for UK waters. However, by comparison to other anthropogenic sound in the marine environment, aggregate extraction is not considered to be a major threat at this time. Marine renewable energy generation is a rapidly evolving industry, with some developments amongst the largest offshore engineering projects ever undertaken. The marine renewables industry encompasses three major sectors: offshore wind, tidal-stream and wave energy. The ICES Working Group on Marine Mammal Ecology (WGMME) assessed the effects of construction and operation of windfarms (ICES WGMME 2010), tidal devices (ICES WGMME 2011) and wave energy converters (ICES WGMME 2012) on marine mammals, work that was synthesised by Murphy et al. (2012a). To date, pile driving constitutes the single most important type of impact. In the UK, operators are required to follow the JNCC guidelines for pile driving (JNCC, 2010a). With the amendments to the Habitats Regulations for England and Wales and the new Offshore Marine Regulations in 2007 (and subsequent amendments in 2010), the offences relating to the protection of European Protected Species (EPS) were revised. EPS are species listed on Annex IV. In the territorial waters of Scotland and Northern Ireland, the offence of intentional or reckless disturbance has been incorporated together with the deliberate injury and disturbance regulations. In England and Wales, this offence is covered by the Wildlife and Countryside Act 1981 (as amended). The JNCC, Natural England and the Countryside Council for Wales have

	provided advice on interpreting these regulations from the point of view of nature conservation. Guidance was developed for those carrying out activities in the marine environment, to help determine the likelihood of committing an offence, how this can be avoided, and, as a last resort, whether the activity could go ahead under licence. In addition, good practice guidelines and protocols were developed for specific activities (pile driving, seismic surveys and use of explosives) to minimise the risk of injury and reduce disturbance to cetaceans. With respect to the consequence of certain developments, if the activities involved are not likely to be detrimental to the Favourable Conservation Status of a population but an EPS could still be harmed (injured or significantly disturbed), then the applicant should apply for a licence from the relevant regulator to undertake these activities should mitigation or alternative solutions not be viable. Currently, a draft version of these guidelines is being used by industry until they formally receive Cabinet clearance. Similar guidelines have been developed for Scottish waters. The impact of military activity and, in particular, use of low- and mid-frequency active sonar of high-intensity has become a major issue in recent years. Of the 35 UK stranded Risso's dolphins examined post-mortem, five individuals (14%) died as a consequence of gas embolisms (Jepson, 2004; Deaville and Jepson, 2011). These have been linked to noise pollution (Jepson, 2003; Jepson et al., 2005), and, more specifically in other species, to mid-frequency military sonar exposure (Fernandez et al., 2005; Filadelfo et al., 2009). Bubble formation in response to sonar exposure might result from behavioural changes to normal dive profiles (Jepson, 2003). The UK Ministry of Defence (MOD) has developed a number of measures to address the potential impact of military sonar and noise in the marine environment, including the development of a real-time alert procedure for naval training operations. This enables local information on unusual cetacean sightings, such as the presence of a species group closer to shore than usual, to be incorporated into the training schedule and for operations to be relocated if necessary. Such continual improvement of mitigation strategies by the military themselves is probably the best way to limit future impacts. As a response to the 1992 Convention on Biological Diversity the UK has developedbiodiversity action plans (BAP) for all cetacean species. The long term goal of these plans is to increase the range and number of cetaceans in UK waters, ultimately via reducing anthropogenic mortalities and impacts. The UK has been committed to supporting several international agreements and conventions on the conservation of marine mammals and the marine environment in general (e.g. ASCOBANS, The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR)).
2.9.6 Overall trend in Conservation Status	

3 Natura 2000 coverage & conservation measures - Annex II species
(only applies to species listed under Annex II of the Directive)

3.1 Population		
3.1.1 Population size Estimation of population size included in the SAC network	**a) Unit**	
	b) Minimum	
	c) Maximum	
3.1.2 Method used		
3.1.3 Trend of population size within the network (short-term trend) Optional		

3.2 Conservation measures

Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.

3.2.1 Measure	3.2.2 Type					3.2.3 Ranking H = high importance M = medium importance L = low importance	3.2.4 Location where the measure is PRIMARILY applied			3.2.5 Broad evaluation of the measure					
	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off		a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated